

REMARKS

The Office Action mailed October 2, 2002, has been received and its contents carefully noted. The pending claims are claims 1-20. Claims 1-20 were rejected. By this amendment, claims 6 and 12 have been amended. Support may be found in the specification and claims as originally filed. No statutory new matter has been added. Reconsideration is respectfully requested.

Claim Objections

The Examiner objected to claim 6 for the recitation of a typographical error.

Applicants respectfully submit that the claims as amended address the typographical error. Therefore, the claim objection should properly be withdrawn.

The Examiner objected to the recitation of terms seeming to be trademarks in claim 2.

Applicants respectfully submit that "TEI-3356" and "M&B-28767" are not trademarks. TEI-3356 is 15-deoxy-16-alpha-hydroxy-16 beta,20-dimethyl-delta 6,6a-6a-carba PCI as described in the document of Negishi M., et al. (1994) Prostaglandins 48:275-283 and M&B-28767 referenced as MB28767 in the Chemical

Abstract is the cyclopentaneheptanoic acid, 2-{(1E,3R)-3-hydroxy-4-phenoxy-1-butenyl}-5-oxo-(1S,2S)-rel-.

Therefore, the objection to claim 2 should properly be withdrawn.

Rejection under 35 U.S.C. §112, first paragraph

The Examiner rejected claims 1-20 under 35 U.S.C. 112, first paragraph, as being nonenabled. Specifically, the Examiner deemed that the specification and prior art do not enable (1) the method of attenuating, reducing, or stopping the growth of hair by using the claimed composition; (2) the method of stopping the growth of hair; and (3) the method of using prostaglandins EP-2 and EP-4 receptor agonists.

Applicants respectfully submit that the specification clearly provides an enabling disclosure such that a person skilled in the art would be able to stop the growth of hair by using the compositions according the invention as claimed. Several working examples and methods of stopping the growth of hair are disclosed in the specification. Lotions for preventing hair growth are defined in Examples 1-4 on pages 10 and 11. Methods for stopping the growth of hair are disclosed. Some lotions are applied daily at an amount of 10 ml to the scalp for about two to three months. Others are applied daily at an

amount of 15 grams per head of hair, with an exposure time of about one minute for a period of 4 months.

All of these examples show a marked reduction in the daily growth of hair. Therefore, these Examples evidence that the claimed methods for preventing the growth of hair are clearly enabled by the specification.

Nowhere does the Examiner point to specific evidence that the Examples in the specification are false. Instead, the Examiner points to prior art that indicates that PGE1 actually promotes the growth of hair and therefore use of an EP-3 receptor agonist, such as PGE1, to reduce or stop hair growth is contradictory to the prior art. As provided in the specification, Applicants surprisingly found that contrary to prior art teachings, agonists for EP-3 actually reduce hair growth. In fact, in Example IV, Applicants show that topical application of PGE1 reduces hair growth. Applicants respectfully submit that just because the prior art teaches away from the claimed invention, the invention as claimed is not necessarily rendered nonenabled, but rather the nonobvious nature of the invention is established. Moreover, the specification provides a lotion in Example 4, page 11, that contains prostaglandin PGE1 as a prostaglandin EP-3 receptor agonist and AH-23848B as a prostaglandin EP-2 receptor antagonist that lead to an appreciable reduction in the daily

growth of hair. Other Examples disclose formulations containing sulprostone, TEI-3356, M&B-28767, or prostaglandin PGE₁, which reduce hair growth.

The Examiner also deemed that the specification does not enable one skilled in the art to implement methods of using prostaglandins EP-2 and EP-4 receptor agonists.

Applicants respectfully submit that the criteria for determining whether an agent is a "prostaglandin EP-2 receptor agonist" or a "prostaglandin EP-4 receptor agonist" is known in the art. See for example, Narumiya (1999) Physiological Reviews 79(4):1193-1226. Narumiya discloses EP receptor antagonists and agonists and methods for determining their activity. See Figure 7, p. 1203, and p. 1204, table 1. Therefore, conventional methods for screening compounds for being EP antagonists or agonists is known in the art. Screening compounds having a given activity using methods known in the art is not undue experimentation.

Therefore, the invention as claimed is fully enabled and the rejection under 35 U.S.C. 112, first paragraph, should properly be withdrawn.

Rejection under 35 U.S.C. §112, second paragraph

The Examiner rejected claims 1-20 under 35 U.S.C. 112, second paragraph, as being indefinite. Specifically, the

Examiner deemed that in claim 12, the term "a multiple" renders the claim indefinite, and that claim 1 does not set forth any steps.

Applicants respectfully submit that the claims as amended obviate the rejection. Therefore, the rejection under 35 U.S.C. 112, second paragraph, should properly be withdrawn.

Rejection under 35 U.S.C. § 102(b)

The Examiner rejected claims 1-3, 15, 16, 17, 19, and 20 under 35 U.S.C. §102(b) as being anticipated by Hanson (U.S. Pat. No. 5,605,931). Specifically, the Examiner deemed that Hanson discloses a method of reducing hair loss by administering PGE 1 and that topical administration is especially suitable.

Applicants respectfully submit that Hanson relates to a method of administering a prostaglandin type E to protect tissue from injury resulting from chemotherapeutic agents. In Example 2, the use of a prostaglandin E analog, i.e. misoprostol, is disclosed in order to protect hair follicles and prevent hair loss or alopecia, such being side effects of chemotherapy in cancer patients.

Hanson is directed to preventing or stopping hair loss. In fact, Example 2 of Hanson provides that hair growth is stimulated by the administration of misoprostol. See col. 10, lines 28-30. The present invention is directed to reducing or

stopping hair growth. Stopping hair loss is almost the exact opposite of stopping hair growth.

Nowhere does Hanson disclose or suggest that the prostaglandin type E analog may be used to reduce or stop hair loss. Hanson does not anticipate reducing or stopping the growth of hair by administering a prostaglandin EP-3 receptor agonist.

Therefore, the rejection under 35 U.S.C. 102(b) should properly be withdrawn.

Rejection under 35 U.S.C. § 103(a)

The Examiner rejected claims 4-14 and 18 under 35 U.S.C. 103(a) as being unpatentable over Hanson as applied to claims 1-3, 15, 16, 17, 19, and 20 above, and further in view of Bradbury et al. (U.S. Pat. No. 6,124,362) and Bernard et al. (U.S. Pat. No. 5,985,841). Specifically, the Examiner deemed that given the specific teaching in Hanson that topical application of E-type prostaglandins are effective in treating hair loss, it would have been obvious to one of ordinary skill in the art to look for prior art such as Bradbury et al. for conventional topical formulations for hair loss with an expectation of successfully formulating a topical composition for alopecia. The Examiner deemed that a skilled artisan would

have also adjusted the pH of the composition as taught by Bernard et al.

As explained above, Hanson teaches away from the present invention as claimed. Hanson teaches compositions that prevent hair loss rather than compositions that reduce or stop hair growth.

The disclosures of Bradbury et al. and Bernard et al. do not alleviate the deficiencies of Hanson. In fact, both Bradbury et al. and Bernard et al. are directed to preventing hair loss and/or stimulating hair growth. Like Hanson, the disclosures of Bradbury et al. and Bernard et al. address problems opposite of the present invention.

Bradbury et al. teach compositions for "regulating hair growth". As defined by Bradbury et al. "regulating hair growth" means "increasing the rate of hair growth ... preventing, retarding, or arresting the process of hair loss". See col. 5, lines 6-16. Claim 1 of Bradbury et al. is directed to "regulating hair growth" using the recited composition. The recited composition may further comprise "other hair growth agents" recited in the specification beginning at column 22, line 60. Bernard et al. teach methods of "inducing/stimulating hair growth or retarding hair loss" which comprises administering the recited deoxyglucopyranoside.

Nowhere do Bradbury et al. or Bernard et al. teach or suggest reducing or stopping the growth of hair which comprises administering an EP-3 agonist. Thus, the combination of Hanson with Bradbury et al., Bernard et al., or both does not teach or suggest the claimed invention, i.e. a method for attenuating, reducing or stopping the growth of hair on a subject which comprises administering at least one prostaglandin EP-3 receptor agonist to the subject with a reasonable likelihood of successfully reducing or stopping the growth of hair.

Therefore, the rejection under 35 U.S.C. 103(a) should properly be withdrawn.

Double Patenting

The Examiner rejected the claims under a provisional obviousness-type double patenting rejection over copending Application No. 09/917,211. The Examiner deemed that the claims are not patentably distinct because each set of claims is directed to a method of reducing hair growth by using a composition comprising a prostaglandin EP-3 receptor agonist with EP-2 and/or EP-4 receptor agonists.

Applicants respectfully point out that the present invention as claimed is directed to a composition comprising an EP-3 receptor agonist which may further include an EP-2 and/or an EP-4 receptor antagonist. The invention claimed in copending

Application No. 09/917,211 is directed to a composition comprising a prostaglandin EP-2 receptor antagonist, a prostaglandin EP-4 receptor antagonist, or a combination thereof which may further include an EP-3 agonist. Therefore, the only claims that may be subject to an obviousness-type double patenting rejection is claim 5 of the present invention in view of claim 21 of the copending application. Since the claims of both applications are yet to be allowed, Applicants respectfully request that any obviousness-type double patenting rejection be held in abeyance until allowable subject matter in one or both applications is indicated.

The Examiner also rejected the claims under a provisional obviousness-type double patenting rejection over
copending Application No. 09/917,215.

Applicants respectfully point out that copending Application No. 09/917,215 is directed to preparations containing prostaglandin EP-3 receptor antagonists to attenuate, reduce or stop the loss of hair. Antagonists bind to receptors, but do not induce the usual biological response that is induced by the receptors' native ligands. The present invention is directed to preparations of prostaglandin EP-3 receptor agonists to attenuate, reduce or stop the growth of hair. The agonists and antagonists of the two applications are

different compounds having distinct biological properties with regard to the EP-3 receptor. Moreover, the purpose of copending Application No. 09/917,215 is to attenuate, reduce or stop the loss of hair rather than attenuate, reduce or stop the growth of hair as presently claimed.

Clearly, the technical problems solved by the two inventions, as well as the solutions, i.e. the compositions, are different and patentably distinct. Therefore, an obviousness-type double patenting rejection of the present claims in view of the pending claims of copending Application No. 09/917,215 is improper and should be withdrawn.

Request for Interview

Applicants respectfully request either a telephonic or an in-person interview should there be any remaining issues.

Extension of Time

A Petition for an Extension of Time for three (3) month under 37 C.F.R 1.136 and the appropriate fee are submitted herewith to extend the time for responding to the Office Action to April 2, 2003.

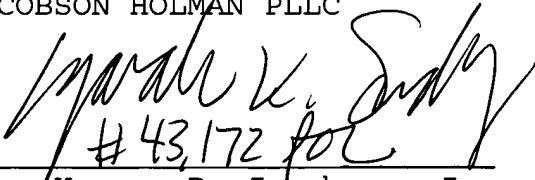
Conclusion

In view of the foregoing amendments and remarks, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims and to find this application to be in allowable condition.

Respectfully submitted,

JACOBSON HOLMAN PLLC

By


#43,172 for
Harvey B. Jacobson, Jr.

Reg. No. 20,851

400 Seventh Street, N.W.
Washington, D.C. 20004-2201
(202) 638-6666

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HBJ/SKS